

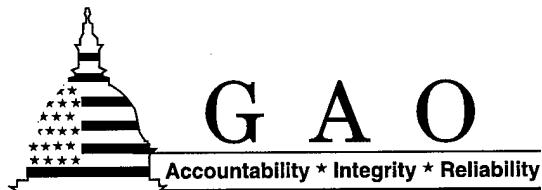
November 1999

# DEFENSE LOGISTICS

New 120-mm Tank  
Training Round  
Procurement Will  
Result in Savings



DTIC QUALITY INSPECTED 4



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November 22, 1999

The Honorable John W. Warner  
Chairman, Committee on Armed Services  
United States Senate

Dear Mr. Chairman:

In March 1975, the Department of Defense designated the Army as the Single Manager for Conventional Ammunition<sup>1</sup> with responsibility for procuring conventional ammunition common to all military services. As the single manager, the Army has relied on government-owned and private sector facilities to meet its conventional ammunition requirements. However, with the reduction in ammunition budgets and declining requirements, the Army has significantly downsized the number of government-owned plants in recent years and currently has eight plants producing ammunition. One of these is the Radford Army Ammunition Plant, which historically has produced propellant used in making ammunition.

Tank training ammunition in fiscal year 1999 amounted to about \$205 million, or 24 percent of the total Army conventional ammunition budget, and, therefore, has a significant impact on the ammunition production base. In 1995, faced with dramatic reductions in ammunition requirements, the Army attempted to reduce costs by awarding multiyear firm fixed-price contracts covering fiscal years 1995 through 1998 for the production of 120-mm tank training rounds to two contractors, Alliant Techsystems and Primex Technologies. In addition, a 1993 study of the propellant production base showed that Radford's ability to compete for propellant business was declining and the Army needed Radford for its wartime replenishment mission<sup>2</sup> for propellant. Therefore, both contractors were required to purchase the training round propellant from Radford. In 1999, the Army entered into new contracts for tank training

<sup>1</sup> Conventional ammunition includes artillery, bombs, demolition material, fuzes, grenades, mines, mortars, propellant charges, pyrotechnics, unguided rockets, small arms, and tank training ammunition.

<sup>2</sup> Replenishment means replacing ammunition losses after a conflict in accordance with defense planning guidance.

rounds with the two contractors covering fiscal years 1999 through 2003. Because the Army believed that Radford's industrial capability no longer required special protection, it allowed the contractors to purchase propellant competitively. As a consequence, one contractor chose to purchase propellant from a private company.

As requested, we determined whether the Army's actions in 1999 resulted in savings on the purchase of 120-mm tank training rounds, the effect the Army's decision to no longer direct that propellant be purchased from Radford had on plant overhead and employment, and the potential effect on Radford's wartime replenishment mission.

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## Results in Brief

The Army could achieve about \$52 million in savings over a 5-year period from its 1999 contracts for the procurement of 120-mm tank training rounds if all contract options are exercised. The Army expects to achieve the savings based on a negotiated decrease in price per round from the 1995 to the 1999 multiyear contracts. However, a decision by one of the contractors to use a propellant producer other than Radford resulted in a 50-percent reduction in Radford's propellant business for the tank training round program.

To absorb increased overhead costs due to the loss of business, the operating contractor at Radford negotiated price increases for propellant with the Army for two new contracts totaling at least \$14 million. Another result of the Army's decision to no longer direct that propellant be purchased from Radford was that the contractor reduced its workforce at Radford of 1,200 by 185 personnel. These personnel reductions required the contractor to incur certain employee separation costs and affected the contractor's retirement funding liabilities. The Army recognized that the 1999 multiyear contracts could affect Radford's operations but believed the impact would be minimized because Radford was in a competitive position to win other Department of Defense contracts.

The loss of propellant work does not affect Radford's ability to meet its wartime replenishment mission. Radford's facilities have the capacity to produce about 100 million pounds of propellant per year but currently are only producing 10 million pounds per year. With additional personnel, this provides more than adequate capacity for Radford to meet its replenishment requirements. Radford officials stated that as long as the propellant lines are operating, they would be able to replenish propellant in

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accordance with requirements contained in current Defense Planning Guidance.

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## Background

The Radford Army Ammunition Plant, located in Radford, Virginia, is the Army's only government-owned, contractor-operated propellant production facility. Since 1994, the Army has contracted with Alliant Techsystems to operate Radford as the facility use contractor.<sup>3</sup> Radford is currently capable of producing a variety of propellants used in Department of Defense ammunition products such as the 120-mm tank training and tank tactical rounds and the Hydra-70 rocket.

Since 1987, the Army has procured its 120-mm tank training rounds from two prime contractors, AlliantTechsystems (formerly Honeywell) and General Defense (subsequently bought by Olin). The two contractors were responsible for choosing their subcontractors and obtaining all components. The contracts for fiscal year 1988 provided for a 70-percent/30-percent split between the contractors, with the larger share going to the lowest offeror. From 1988 through 1994, contracts were awarded annually on a cost-plus basis. In 1993, to reduce costs, the Army decided to award multiyear firm fixed-price contracts for the 120-mm tank training rounds.

In 1993, with Alliant and Olin considering a merger, the Army became concerned that the contractors might acquire propellant from a source other than Radford. Based on a detailed study of the propellant production base, the Army determined that Radford, because of high costs, could not compete in an open market for tank training round propellant business, yet the facility could not remain viable without this business. Therefore, the Army, in awarding the first in a series of multiyear contracts for 120-mm tank training rounds for fiscal years 1995 through 1998, required that the prime contractors, Alliant and Olin,<sup>4</sup> purchase propellant for the training rounds from Radford.

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<sup>3</sup>The facility use contract provides for Alliant's use of Radford facilities to complete work for government as well as commercial customers, subcontract work, and foreign sales.

<sup>4</sup>Olin subsequently spun off its Ordnance and Aerospace Divisions, which became Primex Technologies.

In 1997, the Army began developing its tank training round acquisition strategy for fiscal years 1999 through 2003. Under this strategy, the Army believed that Radford could now compete in the open market because overhead costs at Radford were down due to the rents obtained through the Armament Retooling and Manufacturing Support Act<sup>5</sup> as well as the infusion of Alliant's own money for modernization purposes. Therefore, the Army no longer required that the manufacturing contractors purchase propellant from Radford for the 1999 multiyear contracts. The Army also planned to award firm fixed-price contracts and split the work between its two manufacturing contractors on a 60-percent/40-percent basis with the lowest price offeror receiving the larger share.

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## Multiyear Contracts Provide Savings but Reduce Radford Workload

The Army could achieve about \$52 million in savings based on the negotiated decrease in price per round from the 1995 to the 1999 multiyear contracts if all contract year options are exercised.<sup>6</sup> However, to absorb the impact of decreased work at Radford due to the 1999 multiyear contracts, Alliant negotiated price increases for propellant on other new contracts with the Army and reduced personnel. The reduction-in-force caused Alliant to incur certain separation costs, and affected retirement fund liabilities, including the employee pension fund, that funds retirees' annual annuities, and the post-retirement benefits fund, that funds retiree health care costs. While the Army realized that Radford would be affected by the tank training round contracts, it believed Radford was capable of attracting additional business that would offset the loss of business due to the 1999 multiyear awards.

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### Multiyear Contracts Savings

According to the former head of the Army tank team, the Army wanted to achieve certain savings for the 1999 multiyear contracts. However, after the contractors had submitted their proposals, the Army realized that the proposals would not allow them to achieve their savings goal. Once the proposals were evaluated, the Army offered the contractors a price per round based on a 50-percent/50-percent split rather than the original

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<sup>5</sup> The Armament Retooling and Manufacturing Support Act of 1992 encouraged, to the maximum extent practicable, nondefense commercial firms to use government-owned, contractor-operated ammunition manufacturing facilities of the Department of the Army.

<sup>6</sup> The contract is for a base year plus 4 option years for specific types and quantities of tank training rounds.

60-percent/40-percent split. To protect the integrity of the procurement, this offer was limited to acceptance or rejection in a short time period. If either contractor rejected the offer, the contracts were to be awarded according to the allocation stated in the solicitation. The contractors accepted the Army's proposed price per round, which reduced the price of the rounds from the original proposals by an additional \$1.2 million over the life of the contracts. This potentially could result in a total savings of about \$52 million over the life of the contracts if all options are exercised. As shown in table 1, each type of training round decreased in price from the 1995 multiyear contracts to the 1999 multiyear contracts.

**Table 1: Price Per Round Savings From 1995 Multiyear Contracts to 1999 Multiyear Contracts**

Training round	1995 Multiyear contract price	1999 Multiyear contract price	Price difference per round	Quantity	Savings <sup>a</sup>
M831A1	\$552.04	\$518.07	\$33.97	469,928	\$15,961,461
M865	524.51	490.70	33.81	1,075,266	36,350,183
<b>Total</b>					<b>\$52,311,644</b>

<sup>a</sup>Savings do not precisely calculate due to rounding associated with price difference per round.

Source: Army Industrial Operations Command.

### Price Increases Negotiated for Propellant at Radford

As part of the acquisition strategy, the Army did not require the contractors to purchase propellant from Radford for the 1999 multiyear contracts. One of the contractors chose a different producer for its propellant needs, resulting in Radford losing 50 percent of the tank training round propellant business it had under the 1995 multiyear contracts. To absorb the loss to the propellant business base, Alliant, which operates the Radford plant, allocated a portion of its overhead costs to other propellant products. Alliant negotiated price increases with the Army on at least two propellant products directly related to the loss of propellant business for the tank training round. One such product was the propellant for the Hydra-70 rocket, a weapon system fired from helicopters such as the Apache and Cobra and aircraft such as the Air Force F-16 Falcon. The Army also agreed to a price increase for propellant for tank tactical rounds. The total impact of the increased prices is at least \$14 million over the life of the contracts.

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**Reduced Employment  
Levels and Contractor Costs  
at Radford**

To further reduce its overhead costs due to a reduction in its business base, Alliant reduced employment levels. As shown in table 2, as a result of losing 50 percent of the tank training round propellant business, Alliant reduced its workforce at Radford of 1,200 by 185 personnel, or about 15 percent. Some left under a voluntary separation program or took Alliant's offer of early retirement for affected employees; others were laid off.

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**Table 2: Personnel Reductions at Radford**

Type of reduction-in-force	Total number of employees	Direct personnel <sup>a</sup>	Indirect personnel <sup>b</sup>
Involuntary layoff	107	93	14
Voluntary separation program	21	6	15
Voluntary incentive retirement	57	0	57
<b>Total</b>	<b>185</b>	<b>99</b>	<b>86</b>

<sup>a</sup> Direct personnel are those who work directly on the production lines.

<sup>b</sup> Indirect personnel include non-production positions such as maintenance personnel.

Source: Alliant Techsystems—Radford.

According to an Alliant official, Alliant incurred about \$3.2 million in severance and early retirement incentive costs to reduce employee levels as a result of the reduced workload. The reductions also increased Alliant's liabilities for employee retirement pension and post-retirement benefits. According to an Alliant official, based on an actuarial evaluation, as of January 1, 1999, the pension fund was about \$91.8 million overfunded. As a result of the retirements, outlays from the pension fund will reduce this surplus. At the time of this report, it is unknown how much the surplus will be reduced, but according to an Alliant official, the reduction is not expected to reduce the fund's viability. The post retirement benefits account, on the other hand, as of January 1, 1999, is underfunded by about \$57.2 million.<sup>7</sup> An Alliant official stated that until their actuaries complete their analysis at the end of calendar year 1999, the impact of losing the propellant business on this account will not be known. The official estimated that about \$2.4 million in incentive costs it incurred for early retirements were paid out of Alliant's overfunded pension fund at Radford.

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<sup>7</sup> According to an Army official, Alliant has developed a schedule for funding this amount.

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Severance costs totaled about \$814,000 and were paid out of the plant's overhead account.

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**Army's Assessment of 1999 Multiyear Contracts' Effect on Radford's Operations**

According to an Army official, Alliant and Members of Congress raised concerns about the effect of the loss of business on overhead rates and costs associated with a reduction-in-force. Due to these concerns, in January 1999, the Army performed a cost analysis that showed personnel would be reduced by about 11 percent and costs from the loss of propellant business totaling about \$17.5 million over the life of the contract would be allocated to other Department of Defense programs. The Army's Cost and Economic Analysis Center reviewed this analysis and found it to be reasonable. The Army did not alter its procurement strategy because, as previously discussed, Radford had decreased its overhead costs and, therefore, the Army believed Radford could successfully compete for future contracts, thereby minimizing the impact of the loss of tank training round propellant production to the business base. In fact, since the award of the tank training round contracts, Radford won the propellant contract for the Hydra-70 rocket.

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**Replenishment Mission Is Not Threatened**

Radford has sufficient capacity to perform its replenishment mission with additional personnel. The plant is capable of producing about 100 million pounds of propellant per year; while its current production is 10 million pounds per year. According to current Defense Planning Guidance on ammunition replenishment, Department of Defense components are to provide the capability to replace the projected consumption (for one major theater war) of critical munitions, troop support items, and spares generally within 3 years. This mission requires Radford to produce about 92 million pounds of propellant and 97 million pounds of trinitrotoluene, also known as TNT, if needed. According to an Alliant official, in order to accomplish this mission, Radford has to maintain a large facility and operating production lines. The official stated that losing 50 percent of the tank training round propellant business has no immediate impact on Radford's ability to meet its wartime replenishment mission since production lines are operating. However, if enough business is lost and lines are shut down, there is increased risk that replenishment schedules cannot be met within the Defense Planning Guidance time frames without increased expenses.

## Agency Comments

On October 25, 1999, we requested comments on a draft of this report. The Director of Strategic and Tactical Systems in the Office of the Under Secretary of Defense for Acquisition and Technology provided oral comments on November 5, 1999. The Director concurred with the report.

## Scope and Methodology

To determine whether the Army's actions in 1999 resulted in savings on the purchase of 120-mm tank training rounds and the effect of the Army's decision to no longer direct that propellant be purchased from Radford on plant overhead and employment, we reviewed the contract files for the 1995 and 1999 multiyear contracts, compared the prices of other Department of Defense products produced at the plant before and after the award of the second multiyear contracts, reviewed the cost analysis performed by the Army, and analyzed employment levels at Radford before and after the loss of propellant business, including the effect of workforce reductions on retirement funds. We also interviewed officials at the Office of the Secretary of Defense, Washington, D.C.; the U.S. Army Cost & Economic Analysis Center, Falls Church, Virginia; the Army Materiel Command, Alexandria, Virginia; the Industrial Operations Command, Rock Island, Illinois; the Radford Army Ammunition Plant, Radford, Virginia; Alliant Techsystems Headquarters, Hopkins, Minnesota; and Primex Technologies Headquarters, St. Petersburg, Florida.

To determine the potential effect on Radford's wartime replenishment mission, we reviewed the plant's replenishment requirements and the requirements contained in the current Defense Planning Guidance and discussed replenishment with Army and contractor officials.

We conducted our review from May through October 1999 in accordance with generally accepted government auditing standards.

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We are sending copies of this report to the Honorable William Cohen, Secretary of Defense; the Honorable Louis Caldera, Secretary of the Army; the Honorable Jacob Lew, Director, Office of Management and Budget; Senator Carl Levin, Ranking Minority Member, Senate Committee on Armed Services; Representative Floyd D. Spence, Chairman, and Representative Ike Skelton, Ranking Minority Member, House Committee on Armed Services. Copies will also be made available to others upon request.

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Key contributors to this report are listed in appendix I.

Sincerely yours,



David R. Warren, Director  
Defense Management Issues

# GAO Contact and Staff Acknowledgments

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## GAO Contact

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## Acknowledgments

In addition to the name above, Kimberly C. Seay, C. Douglas Mills, Jr., and Robert J. Rivas made key contributions to this report.

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